12 April 1963

The Dolphin, the Porpoise, and the Whale

At the Communication Research Institute we deal with dolphins. We receive so many questions about them that we have printed up this brief statement for interested non-scientists. The question most often asked is,"What is the difference between dolphins and porpoises?" As it happens the difference between dolphins and porpoises is not terribly important in the scientific scheme of things. All the naming and distinguishing among creatures that really counts is in Latin. Still, "dolphin" and "porpoise" are everyday words. Even though scientists don't use them when precision is called for, they often have to use them in general, just like everybody else.

According to the convention among scientists, dolphins are small and medium-sized cetaceans that have conical (pointy) teeth and their jaws lengthened into a long beak. The word is from the Latin delphinus, and before that, the Greek delphis, all meaning the same thing. Dolphin.

Dolph. Illo. about here

Tursiops truncatus, the bottlenosed dolphin

Porpoises, on the other hand, are small cetaceans with a rounded head and less of a beak; their teeth are spade-shaped, or rather like your front teeth. Incidentally, the whimsical coinage of porpi as the plural of "porpoise" is neither original nor correct. "Porpoise" ~~isnt~~ isn't from any Latin porpus, but from vulgar French

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Porp. pic about here

Phocaena phocaena, the common porpoise

porc-poisson, or pig-fish. But of course they are neither pigs nor fish; they breathe air, bear live ~~youngx~~ young and have belly-buttons, as do all cetaceans; in fact, just as do most mammals, and even as you and I.

Incidentally, you may wonder just what a cetacean (pronounced

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It still surprises some people that cetaceans are mammals. It seems surprising, for instance, that mammals should live in the water, and be streamlined like fish. But is this more surprising than that some mammals can fly, and others can walk upright (or organize symphony orchestras)?) The resemblance to fish is only superficial. Cetaceans have their rear fin, or ~~fluke~~ fluke, mounted horizontally, so they can commute up and down from the surface, where they must breathe, to the depths, where they have other business, like eating. Fish, on the other hand, rarely breathe air; and their tail fin is mounted vertically, for they are usually restricted to a particular depth.

Moreover, members of the order cetacea-- the cetaceans-- are by no means the only kinds of aquatic mammal. Their aquatic adaptation is the oldest in evolutionary time. However, members of the order sirenia (the dugong and manatee) cannot leave the water either, and the pinnipedia (seal, sea lion and walrus) must hunt and feed in the water. (There are borderline water mammals, such as the polar bear, hippopotamus and sea otter, but these are still

What this means

dry behind the ears, so to speak.)

There are about a hundred species of whales-- cetaceans-- of which perhaps two dozen may be called dolphins, and half-a-dozen, porpoises. But from this number the reader can easily see that terms like "dolphin" and "porpoise" oversimplify: for any precision at all, it is necessary to use the Latin, or Linnaean (lin-ee-an) system of naming. Laymen tend to regard Latin names of animals as a nuisance. Actually the system handles a great deal of scientific bookkeeping with a minimum of trouble. Linnaean naming permits you to specify exactly a species, the genus that also includes its close relatives, and, in ever-widening circles, the greater family affiliations of a creature. Thus the reader is presumably a member of the species Homo sapiens Linnaeus. (The name of the man who named the species is often attached to its name; in this case, it was Linnaeus himself.) Thus man is of the genus Homo. That puts him in the family Hominidae, which is in the infraorder Catarrhini, of the suborder Anthropoidea, in the order Primates. Moreover, the order Primates is in the infraclass Eutheria, which is in the subclass Theria of the class Mammalia of the subphylum vertebrata of the phylum chordata. And chordata is in the animal kingdom. It is these terms that are important, not words like "monkey" (which means roughly any member of anthropoidea.)

Thus it is only a minor nuisance that the aquatic sideshows call their dolphins "porpoises," and that laymen tend to use the word

"porpoise" for any small cetaceans seen around a boat. While calling a dolphin a porpoise avoids confusion with the bright-colored fish dolphin (Coryphaena hippurus), apparently called "dolphin" because it breaks water like the cetacean, this fish has no right to steal away the name of a heraldic mammal the Greeks called a god.

The word "dolphin" among mammals is strictly reserved for the family Delphinidae sensu stricto, comprising some twenty species. On American shores, the most common dolphins are Tursiops truncatus Montagu, the grey "bottlenosed dolphin" of shoals and bays, and the "common dolphin" Delphinus delphis Linnaeus, also called "saddle-backed." "Porpoise" in the same strict sense is reserved for the subfamily phocaenidae, with some half-a-dozen different species. The most common of these on American coasts is Phocaena phocaena (pronounced foseena twice,) Linnaeus the "common" or "harbor" porpoise.

At the Communication Research Institute we study dolphins. Currently we have in captivity several personable, noisy representatives of T. truncatus, who are friendly, mischievous, and mysterious. They run from eight to twelve feet in length as adults, and weigh some 350 to 450 pounds. How long they live we do not know, though their slick grey skin begins to show wrinkles by the time they are five or so.

As is well known, they have big brains for their size. The brain of an 8-foot dolphin may be much bigger than that of a man.

What this means

What this means in terms of intelligence we do not yet know. If it is size of brain that counts, the Blue Whale (Balaenoptera ~~physalus~~ musculus) is the most intelligent creature ~~xkk~~ that ever lived. ~~If~~ Some scholars, going by certain features of structure and development, consider the dolphin brain to be one of the most advanced of all. In any case it is much more convenient to work with dolphins than with Blue Whales.

We hope these remarks may be of some use to the non-scientists who are showing such interest in our work. Of course ~~they~~ ~~work~~ ~~only~~ ~~x~~ this paper is only a beginning; but our work, too, is only a beginning.

SUGGESTED READ~~E~~RING

John C. Lilly, Man and Dolphin. Pyramid Publications, 444 Madison Avenue, New York 22, N.Y., 1962; 75¢ ~~X~~

The story of the Communication Research Institute.

E.J. Slijper, Whales. Basic Books, ~~1~~ 1962, $12.50.

A general introduction to Cetology.

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~~December~~ 11, 1959

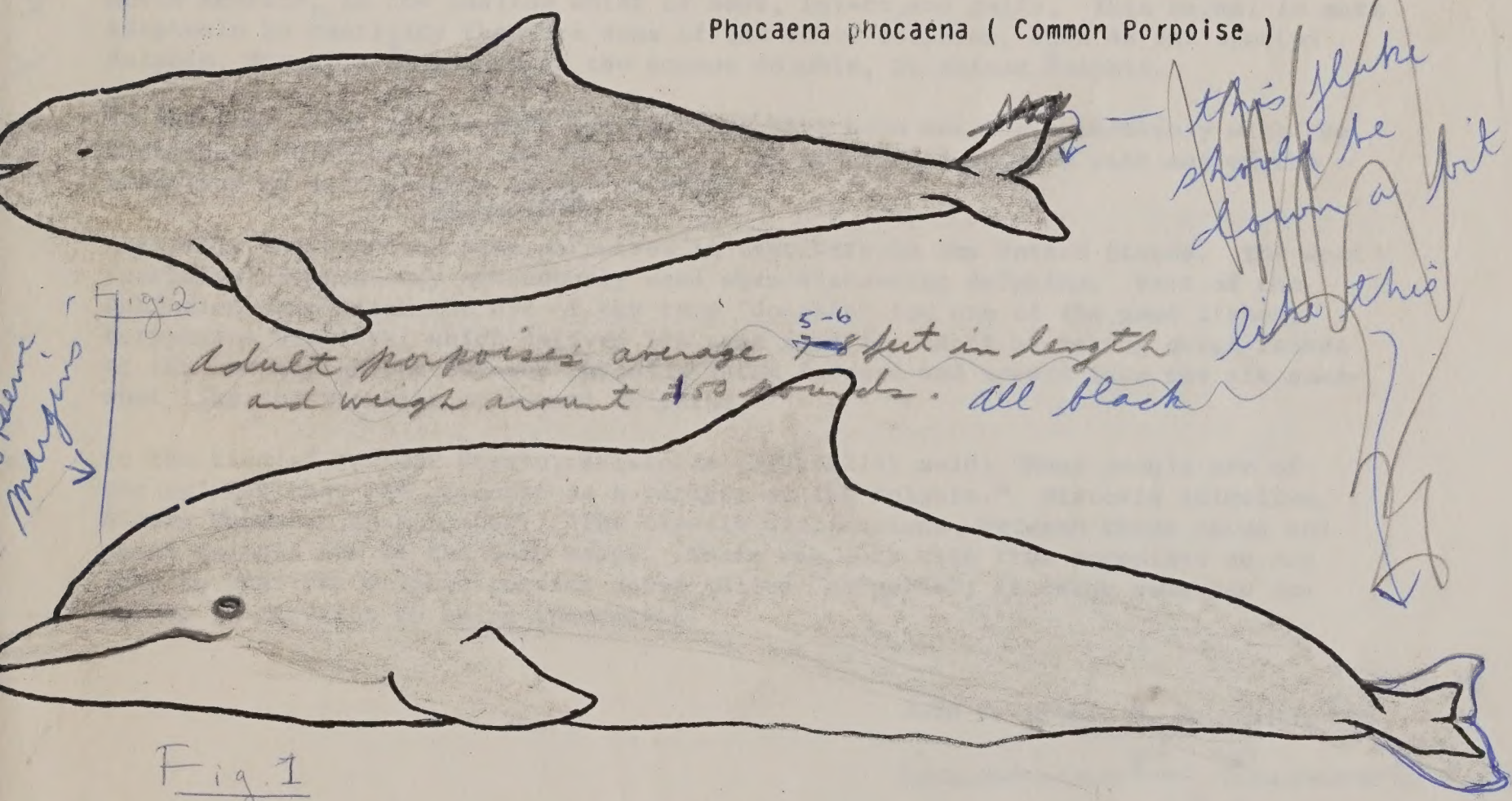
Bulletin ~~#1~~
Communication Research Institute
3908 Main Highway
~~Coconut Grove~~, Florida
Miami 33,

DIFFERENCES BETWEEN DOLPHINS AND PORPOISES

The small whales are divided into two groups: the dolphins and the porpoises. All of these animals breathe air, have an aquatic existence, and bear and suckle their young under water.

The proper scientific distinction between dolphins and porpoises are as follows:

1. General Body Form. The porpoises tend to be smaller than the dolphins. The white jaws of the dolphins are long and drawn out in the form of a definite beak; the jaws of the porpoises are shorter and more rounded with no definite beak. In general, they share the common body form of all of the whales including flippers, a dorsal fin (with some exceptions) and horizontally placed (tail) flukes.



Phocaena phocaena (Common Porpoise)

this fluke should be down at the tip like this

Fig. 2

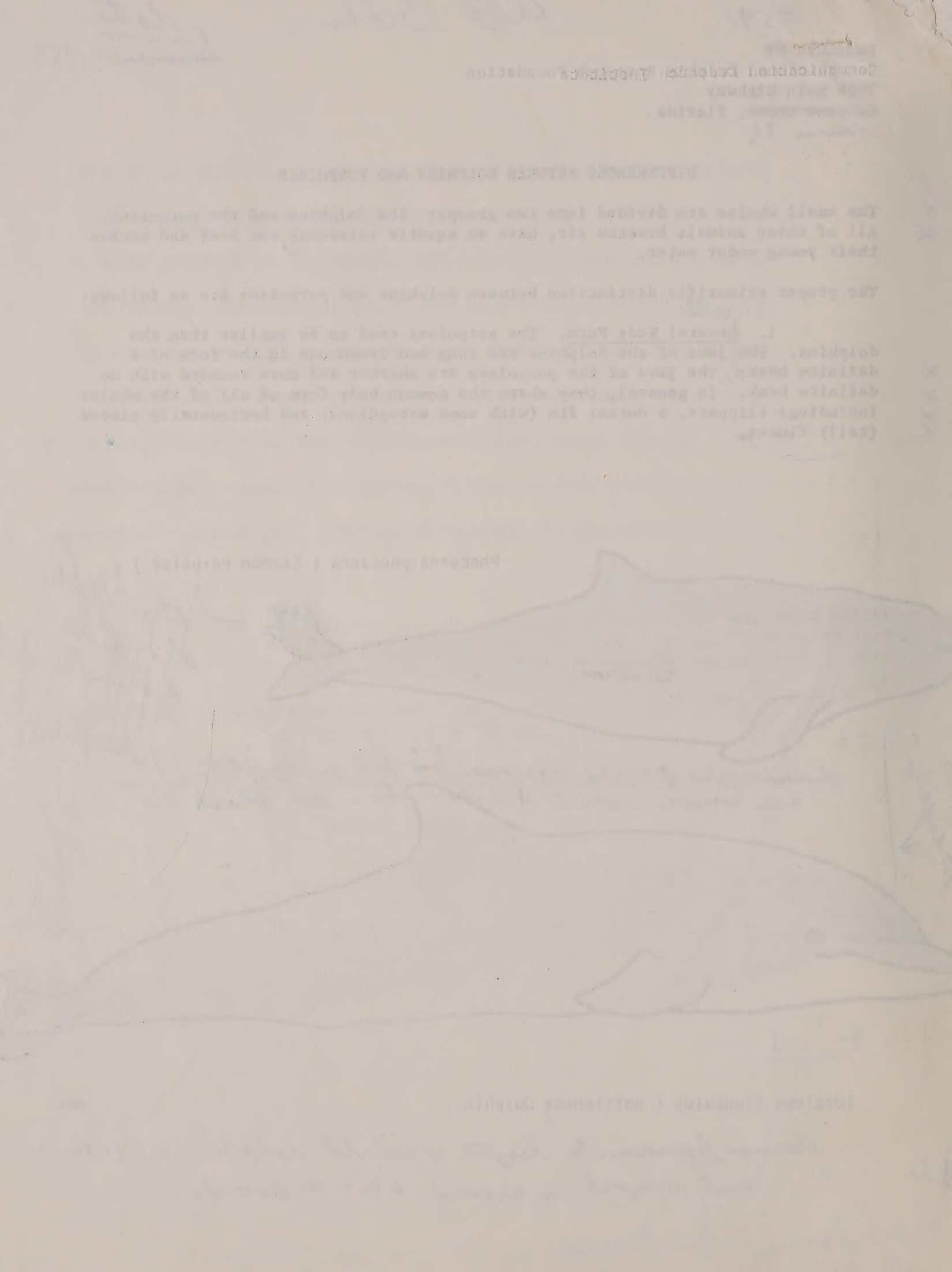
Adult porpoises average 5-6 ~~7-8~~ feet in length and weigh around ~~150~~ pounds. all black

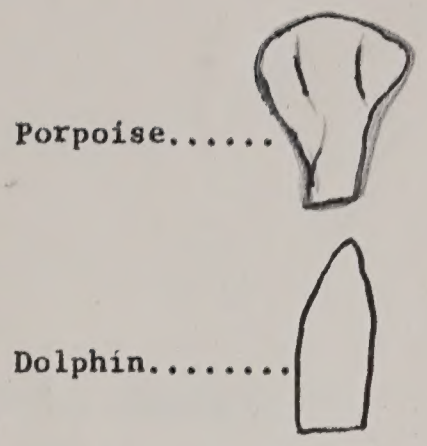
Fig. 1

Tursiops Truncatus (Bottlenose Dolphin,) CRL.

average/approximate length of adult dolphin is 8-12 feet and weight is around 400-500 pounds. color

Description of Coloration -





2. Teeth. The teeth of all of the dolphins are in the form of cones with a cylindrical base and an internal conical cavity. This tooth shape is typical of all of the dolphins, from the smallest river dolphin to the killer and pilot whales. As the animal ages, the tips of the cones are lost and become flat with rounded areas appearing on the ends of the teeth. All of the teeth (100 or more) of the bottlenose dolphin and most other dolphins are similar in shape.

The porpoises, on the other hand, have a very different form of tooth. Phocaena has spade-shaped teeth which are flat and have a serrated cutting edge placed parallel to the bone of the jaw. The handle of the spade is embedded in the jaw.

It is not known how these differences arose between the dolphins and the porpoises in their evolution but these are only a few of the mysteries of the differences between the many members of the variegated cetacean tribes.

In the United States, the trained mammal acts in the large marine acquariums are stocked mainly with the bottlenose dolphin whose scientific name is Tursiops truncatus (Montagu). This is a shoal-water cetacean commonly found along the East Coast of North America, in the shallow water of bays, inlets, and gulfs. This animal is more adaptable to captivity than are some of the other dolphins, such as the spotted dolphin, Stenella plagiodon, or the common dolphin, Delphinus delphis.

At the Communication Research Institute we have been working extensively with the bottlenose dolphins, Tursiops truncatus. It is planned to work with one of the porpoises as soon as they can be obtained.

Currently there are no true porpoises in captivity in the United States. The word "porpoise" is commonly erroneously used when discussing dolphins. Part of the confusion comes from the use of the term "dolphin" for one of the game fishes, Coryphaena hippurus, which derived its name from its habit of making quick rushes at the surface of the sea and throwing water forward and upward into the air somewhat like the spouting of mammal dolphins.

In the time of ancient Greece, Aristotle (399-322 bc) said: "Many people are of the opinion that the porpoise is a variety of the dolphin." Historia Animalium, D'Arcy Thompson (translator). The classic distinctions between these terms and these animals are in the best usage. Those who work with true porpoises do not like to hear the dolphin cousins being called "porpoise": it seems somewhat impolite in addition to being inaccurate!

JOHN C. LILLY, M. D., Director
Communication Research Institute
3908 Main Highway
Miami 33, Florida

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The Dolphin, ~~T~~ the Porpoise, and the Whale~~x~~

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Dolph. Ill. about here

PIC

Tursiops truncatus, the bottlenosed dolphin

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PIC → thereabouts

Phocaena phocaena the common porpoise

Porpoise pic about here

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Incidentally, you may wonder just what a cetacean (pronounced setayshun) is. Well, a big cetacean is called a whale. A little cetacean is called a dolphin or a porpoise, unless it is going to grow up to be a big cetacean. ~~(In the larger sense they may all be called "whales," though this would mislead some people -- everybody knows whales are big.)~~ (You can use the word "whale" for all cetaceans, big and small, do not use but everybody dolphins and porpoises included. However, it is the popular feeling that whales are big, so that the word should not be used for animals smaller than people. people feel uncomfortable using the word "whale" for animals smaller than themselves. Communication Research Institute takes no stand on the matter, prefers the word "cetacean" anyway.)

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in terms of intelligence of brain
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Some scholars, ~~Wirz~~ going by certain features of structure and
~~of structure or development, it may be that the dolphin's brain is one~~
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~~the first case, we could be said to be studying dolphins because~~
dolphins than with ~~Blue Whales~~ Blue Whales.
~~we can't get a Blue Whale into the lab. In the latter case, the~~

~~dolphin takes on a particular prestige for our kind of work~~.

We hope these remarks may be of some use
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INS

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The study of dolphins, then, is an interesting ~~ex~~ compromise. Perhaps it would be more exciting to study the Blue Whale, which runs up to 120 feet, but considering the difficulty and expense of keeping just one dolphin, it's not too practical.

SUGGESTED READING

~~Skipx~~ 444 Madison Avenue, New York 22, N. Y. 1962; 75¢.

John C. Lilly, Man and Dolphin. ~~Newxxorkx~~ Pyramid Publications, / The story of the Communication Research Institute.

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CR.I
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LAST VERSION

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